The Lost Arts of Memory

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Ideas:

THE LOST ARTS
OF MEMORY

"Nothing," wrote Sigmund Freud, "is past or forgotten." Every individual's experience leaves permanent "memory traces," or "engrams," he said, whose recall is affected by the intensity of sensual associations with it. For centuries, scholars developed elaborate schemes to assist recall—diagrams, rhymes, and picture alphabets. Today, the psychiatrist seeks the origins of his patient's mental anguish. And scientists look for models of artificial intelligence, even as they develop machines with the ability to encode, store, and retrieve information. Here, historian Daniel J. Boorstin describes the evolution of memory as an art. But he suggests that in our age of information overload, *forgetting* may "become more than ever a prerequisite for sanity."

by Daniel J. Boorstin

Before the printed book, Memory ruled daily life and the occult learning, and fully deserved the name later applied to printing, the "art preservative of all arts" (*Ars artium omnium conservatrix*). The Memory of individuals and of communities carried knowledge through time and space. For millennia personal Memory reigned over entertainment and information, over the perpetuation and perfection of crafts, the practice of commerce, the conduct of professions. By Memory and in Memory the fruits of education were garnered, preserved, and stored. Memory was an awesome faculty which everyone had to cultivate, in ways and for reasons we have long since forgotten. In these last 500 years we see only pitiful relics of the empire and the power of Memory.

The ancient Greeks gave mythic form to this fact that ruled their lives. The Goddess of Memory (Mnemosyne) was a Titan, daughter of Uranus (Heaven) and Gaea (Earth), and mother of all the nine Muses. In legend these were Epic Poetry (Calliope), History (Clio), Flute Playing (Euterpe), Tragedy (Melpomene), Dancing (Terpsichore), the Lyre (Erato), Sacred Song (Polyhymnia), Astronomy (Urania), and Comedy (Thalia). When the nine daughters of King Pierus challenged them in song, the King's daughters were punished by being changed into magpies, who could only sound monotonous repetition.

In this detail from a painting in the Farnese Palace in Rome, Baldassare Peruzzi (1481–1536) shows the Muses with the god Apollo, whom the ancients also associated with the arts and sciences.

Everyone needed the arts of Memory, which, like other arts, could be cultivated. The skills of Memory could be perfected, and virtuosi were admired. Only recently has "memory training" become a butt of ridicule and a refuge of charlatans. The traditional arts of Memory, delightfully chronicled by historian Frances A. Yates, flourished in Europe over the centuries.

The inventor of the mnemonic art was said to be the versatile Greek lyric poet Simonides of Ceos (ca. 556–468 B.C.). He was reputed also to be the first to accept payment for his poems. The origins were described in the work on oratory by Cicero, who was himself noted for his mnemonic skill. Once at a banquet in the house of Scopas in Thessaly, Simonides was hired to chant a lyric in honor of his host. But only half of Simonides's poem was in praise of Scopas, as he devoted the other half to the divine twins Castor and Pollux. The angry Scopas therefore would pay only half the agreed sum. While the many guests were still at the banquet table, a message was brought to Simonides that there were two young men at the door who wanted him to come outside. When he went out, he could see no one. The mysterious callers were, of course, Castor and Pollux, who had found their own way to pay Simonides for their share of the panegyric. For at the very moment when Simonides had left the banquet hall, the roof fell in, burying all the other guests in the ruins. When relatives came to take away the corpses for the burial honors, the mangled bodies could not be identified. Simonides then exercised his remarkable memory to show the grieving relatives which bodies belonged to whom. He did this by thinking back to *where* each of the guests had been seated. Then he was able to identify by place each of the bodies.

It was this experience that suggested to Simonides the classic form

of the art of Memory of which he was reputed to be the inventor. Cicero, who made Memory one of the five principal parts of rhetoric, explained what Simonides had done.

> He inferred that persons desiring to train this faculty must se-
> lect places and form mental images of the things they wish to
> remember and store those images in the places, so that the
> order of the places will preserve the order of the things, and the
> images of the things will denote the things themselves, and we
> shall employ the places and images respectively as a wax
> writing-tablet and the letters written on it.

Simonides's art, which dominated European thinking in the Middle Ages, was based on the two simple concepts of places (*loci*) and images (*imagines*). These provided the lasting elements of Memory techniques for European rhetors, philosophers, and scientists.

A treatise (ca. 86–82 B.C.) written by a Roman teacher of rhetoric and known as *Ad Herrenium*, after the name of the person to whom this work was dedicated, became the standard text, the more highly esteemed because some thought it had been written by Cicero. Quintilian (ca. A.D. 35–95), the other great Roman authority on rhetoric, made the classic rules memorable. He described the "architectural" technique for imprinting the memory with a series of places. Think of a large building, Quintilian said, and walk through its numerous rooms remembering all the ornaments and furnishings in your imagination. Then give each idea to be remembered an image, and as you go through the building again deposit each image in this order in your imagination. For example, if you mentally deposit a spear in the living room, an anchor in the dining room, you will later recall that you are to speak first of the war, then of the navy, etc. This system still works.

In the Middle Ages, a technical jargon was elaborated on the basic distinction between the "natural" memory, with which we are all born and which we exercise without training, and the "artificial" memory, which we can develop. There were different techniques for memorizing things or words. And differing views about where the student should be when he worked at his memory exercises and what were the best kinds of places to serve as imaginary storage houses for the *loci* and images of memory. Some teachers advised the student to find a quiet place,

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where his imagined impressions of the *loci* of memory would not be weakened by surrounding noises and passing people. And, of course, an observant and well-traveled person was better equipped to provide himself with many varied Memory-places. In those days, one could see some student of rhetoric walking tensely through a deserted building, noting the shape and furnishing of each room to equip his imagination with places to serve as a warehouse for his memory.

The elder Seneca (ca. 55 B.C.–A.D.37), a famous teacher of rhetoric, was said to be able to repeat long passages of speeches he had heard only once many years before. He would impress his students by asking each member of a class of 200 to recite a line of poetry, and then he would recite all the lines they had quoted—in *reverse* order, from last to first. Saint Augustine, who also had begun life as a teacher of rhetoric, reported his admiration of a friend who could recite the whole text of Virgil—backwards!

The feats and especially the acrobatics of "artificial" memory were in high repute. "Memory," said Aeschylus, "is the mother of all wisdom." "Memory," agreed Cicero, "is the treasury and guardian of all things." In the heyday of Memory, before the spread of printing, a highly developed Memory was needed by the entertainer, the poet, the singer, the physician, the lawyer, and the priest.

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The first great epics in Europe were produced by an oral tradition, which is another way of saying they were preserved and performed by the arts of Memory. The *Iliad* and the *Odyssey* were perpetuated by word of mouth, without the use of writing. Homer's word for poet is "singer" (*aoidos*). And the singer before Homer seems to have been one who chanted a single poem, short enough to be sung to a single audience on one occasion. The surviving practice in Muslim Serbia, which is described by the brilliant American scholar-explorer Milman Parry, is probably close to the custom of Homeric antiquity. He shows us how in the beginning the length of a poem was limited by the patience of an audience and a singer's remembered repertoire. Then the achievement of a Homer (whether a he, she, or they) was to combine hour-long songs into a connected epic with a grander purpose, a larger theme, and a complicated structure.

The first manuscript books in the ancient Mediterranean were written on papyrus sheets glued together and then rolled up. It was inconvenient to unroll the book, and frequent unrolling wore away the written words. Since there were no separate numbered "pages," it was such a nuisance to verify a quotation that people were inclined to rely on their memory.

Laws were preserved by Memory before they were preserved in docu-

ments. The collective memory of the community was the first legal archive. The English common law was "immemorial" custom which ran to a "time whereof the memory of man runneth not to the contrary." "In the profound ignorance of letters which formerly overspread the whole western world," Sir William Blackstone noted in 1765, "letters were intirely traditional, for this plain reason, that the nations among which they prevailed had but little idea of writing. Thus the British as well as the Gallic druids committed all their laws as well as learning to memory; and it is said of the primitive Saxons here, as well as their brethren on the continent, that *leges sola memoria et usu retinebant*."

Ritual and liturgy, too, were preserved by memory, of which priests were the special custodians. Religious services, often repeated, were ways of imprinting prayers and rites on the youth of the congregation. The prevalence of verse and music as mnemonic devices attests the special importance of memory in the days before printed textbooks. For centuries the standard work on Latin grammar was the 12th-century *Doctrinale*, by Alexander of Villedieu, in 2,000 lines of doggerel. Versified rules were easier to remember, though their crudity appalled Aldus Manutius when he reprinted this work in 1501.

Medieval scholastic philosophers were not satisfied that Memory should be merely a practical skill. So they transformed Memory from a skill into a virtue, an aspect of the virtue of Prudence. After the 12th century, when the classic treatise *Ad Herrenium* reappeared in manuscripts, the scholastics seemed less concerned with the technology than with the Morality of Memory. How could Memory promote the Christian life?

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Saint Thomas Aquinas (1225–1274), his biographers boasted, memorized everything his teachers ever told him in school. In Cologne, Albertus Magnus helped him train his memory. The sayings of the Church Fathers that Aquinas collected for Pope Urban IV after his trips to many monasteries were recorded not from what he had *copied* out but from what he had merely *seen*. Of course he remembered perfectly anything he had ever read. In his *Summa Theologiae* (1267–73) he expounded Cicero's definition of Memory as a part of Prudence, making it one of the four cardinal virtues, and then he provided his own four rules for perfecting the Memory. Until the triumph of the printed book, these Thomist rules of memory prevailed. Copied again and again, they became the scheme of textbooks. Paintings by Lorenzetti and Giotto, as Frances A. Yates explains, depicted virtues and vices to help viewers apply the Thomist rules of artificial Memory. The fresco of the Chapter House of Santa Maria Novella in Florence provides memorable images for each of Aquinas's four cardinal virtues and their several parts. "We must assiduously remember the invisible joys of paradise and the eter-

nal torments of hell," urged Boncompagno's standard medieval treatise. For him, lists of virtues and vices were simply "memorial notes" to help the pious frequent "the paths of remembrance."

Dante's *Divine Comedy*, with his plan of Inferno, Purgatorio, and Paradiso, made vivid both places and images (following the precepts of Simonides and Aquinas) in an easily remembered order. And there were humbler examples, too. The manuscripts of English friars in the 14th century described pictures—for example, of Idolatry in the role of a prostitute—not meant to be seen with the eye, but rather to provide invisible images for the memory.

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Petrarch (1304–1374) also had a great reputation as an authority on the artificial memory and how to cultivate it. He offered his own helpful rules for choosing the "places" where remembered images were to be stored for retrieval. The imagined architecture of Memory, he said, must provide storage places of medium size, not too large or too small for the particular image.

By the time the printing press appeared, the arts of Memory had been elaborated into countless systems. At the beginning of the 16th century the best-known work was a practical text, *Phoenix, sive Artificiosa Memoria* (Venice, 1491), which went through many editions and was widely translated. In that popular handbook, Peter of Ravenna advised that the best memory *loci* were in a deserted church. When you have found your church, you should go around in it three or four times, fixing in your mind all the places where you would later put your memory-images. Each locus should be five or six feet from the one before. Peter boasted that even as a young man he had fixed in his mind 100,000 memory *loci* and by his later travels he had added thousands more. The effectiveness of his system, he said, was shown by the fact that he could repeat verbatim the whole canon law, 200 speeches of Cicero, and 20,000 points of law.

After Gutenberg, realms of everyday life once ruled and served by Memory would be governed by the printed page. In the late Middle Ages, for the small literate class, manuscript books had provided an aid, and sometimes a substitute, for Memory. But the printed book was far more portable, more accurate, more convenient to refer to, and, of course, more public. Whatever was in print, after being written by an author, was also known to printers, proofreaders, and anyone reached by the printed page. A man could now refer to the rules of grammar, the speeches of Cicero, and the texts of theology, canon law, and morality without storing them in himself.

The printed book would be a new warehouse of Memory, superior in countless ways to the internal, invisible warehouse in each person.

When the codex of bound manuscript pages supplanted the long manuscript roll, it was much easier to refer to a written source. After the 12th century some manuscript books carried tables, running heads, and even rudimentary indexes, which showed that Memory was already beginning to lose some of its ancient role. But retrieval became still easier when printed books had title pages and their pages were numbered. When they were equipped with indexes, as they sometimes were by the 16th century, then the only essential feat of Memory was to remember the order of the alphabet. Before the end of the 18th century, the alphabetic index at the back of a book had become standard. The technology of Memory retrieval, though of course never entirely dispensable, played a much smaller role in the higher realms of religion, thought, and knowledge. Spectacular feats of Memory became mere stunts.

Some of the consequences had been predicted two millennia earlier when Socrates lamented the effects of writing itself on the Memory and the soul of the learner. In his dialogue with Phaedrus reported by Plato, Socrates recounts how Thoth, the Egyptian god who invented letters, had misjudged the effect of his invention. Thoth was thus reproached by the god Thamus, then King of Egypt:

> This discovery of yours will create forgetfulness in the learners' souls, because they will not use their memories; they will trust to the external written characters and not remember of themselves. The specific which you have discovered is an aid not to memory, but to reminiscence, and you give your disciples not truth, but only the semblance of truth; they will be hearers of many things and will have learned nothing; they will appear to be omniscient and will generally know nothing; they will be tiresome company, having the show of wisdom without the reality.

The perils that Socrates noted in the written word would be multiplied a thousandfold when words went into print.

The effect was beautifully suggested by Victor Hugo in a familiar passage in *Notre-Dame de Paris* (1831) when the scholar holding his first printed book turns away from his manuscripts, looks at the cathedral, and says "This will kill that" (*Ceci tuera cela*). Print also destroyed "the invisible cathedrals of memory." For the printed book made it less necessary to shape ideas and things into vivid images and then store them in Memory-places.

The same era that saw the decline of the everyday empire of Memory would see the rise of Neoplatonism—a mysterious new empire of the hidden, the secret, the occult. This revival of Platonic ideas in the Renaissance gave a new life and a new realm to Memory. Plato had made much of the soul and its "memory" of ideal forms. Now a galaxy

of talented mystics developed a new technology of Memory. No longer the servant of oratory, only an aspect of rhetoric, Memory became an arcane art, a realm of ineffable entities. The Hermetic art opened secret recesses of the soul. The bizarre Memory Theater of Giulio Camillo, exhibited in Venice and Paris, provided Memory-places not just for convenience but as a way of representing "the eternal nature of all things" in their "eternal places." The Neoplatonists of Cosimo de' Medici's Platonic Academy in Florence—Marsilio Ficino (1433–1499) and Pico della Mirandola (1463–1494)—built an occult art of Memory into their elusive philosophies.

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The most remarkable explorer of the Dark Continent of Memory was the inspired vagrant Giordano Bruno (1548–1600). As a young friar in Naples, he had been inducted into the famous Dominican art of Memory, and when he abandoned the Dominican order, laymen hoped he would reveal the Dominican secrets. He did not disappoint them. For his work *On the Shadows of Ideas, Circe* (1582) explained that Memory-skill was neither natural nor magical but was the product of a special science. Introducing his Memory-science with an incantation by Circe herself, he showed the peculiar potency of images of the decans of the zodiac. The star images, Shadows of Ideas, representing celestial objects, are nearer to the enduring reality than are images of this transient world below. Bruno's system for "remembering" these "shadows of ideas contracted for inner writing" from the celestial images brought his disciples to a higher reality.

> This is to form the inform chaos. . . . It is necessary for the control of memory that the numbers and elements should be disposed in order . . . through certain memorable forms (the images of the zodiac). . . . I tell you that if you contemplate this attentively you will be able to reach such a figurative art that it will help not only the memory but also all the powers of the soul in a wonderful manner.

A guaranteed way to the Unity behind everything, the Divine Unity!

But the everyday needs for Memory were never as important as they had been in the days before paper and printed books. The kudos of Memory declined. In 1580 Montaigne declared that "a good memory is generally joined to a weak judgment." And pundits quipped, "Nothing is more common than a fool with a strong memory."

In the centuries after printing, interest has shifted from the technology of Memory to its pathology. By the late 20th century, interest in Memory was being displaced by interest in aphasia, amnesia, hysteria,

hypnosis, and, of course, psychoanalysis. Pedagogic interest in the arts of Memory came to be displaced by interest in the arts of learning, which were increasingly described as a social process.

And with this came a renewed interest in the arts of forgetting. When Simonides offered to teach the Athenian statesman Themistocles the art of Memory, Cicero reports that he refused. "Teach me not the art of remembering," he said, "but the art of forgetting, for I remember things I do not wish to remember, but I cannot forget things I wish to forget."

The study of forgetting became a frontier of modern psychology, where mental processes were first examined experimentally and subjected to measurement. "Psychology has a long past," Hermann Ebbinghaus (1850–1909) observed, "yet its real history is short." His beautifully simple experiments, which William James called "heroic," were described in *Memory: A Contribution to Experimental Psychology* (1885) and laid the foundation for modern experimental psychology.

Ebbinghaus invented meaningless raw materials for his experiments. Nonsense syllables. By taking any two consonants and putting a vowel in between, he devised some 2,300 rememberable (and forgettable) items, and he put them in series. For his experiments the syllables had the advantage of lacking associations. For two years he used himself as the subject to test the powers of retaining and reproducing these syllables. He kept scrupulous records of all his trials, of the times required for recollection, and of the intervals between his efforts. He also experimented in "relearning." His efforts might have been of little use without his passion for statistics.

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Now, Ebbinghaus hoped, not mere sense perceptions (which Gustav Fechner [1801–1887] had already begun to study and to whom he dedicated his work) but mental phenomena themselves could be submitted to "an experimental and quantitative treatment." Ebbinghaus's "forgetting-curve" related forgetting to the passage of time. His results, still significant, showed that most forgetting takes place soon after "learning."

In this unexpected way the inward world of thought began to be charted with the instruments of modern mathematics. But other explorers, in the Neoplatonist tradition, kept alive an interest in the mysteries of memory. Ebbinghaus himself said that he had studied "the non-voluntary re-emergence of mental images out of the darkness of memory into the light of consciousness." A few other psychologists rashly plunged into that "darkness" of the unconscious, but even as they did so they claimed to have invented a whole new "science."

The founders of modern psychology were increasingly interested in forgetting as a process in everyday life. The incomparable William

James (1842–1910) observed:

> In the practical use of our intellect, forgetting is as important a
> function as remembering. . . . If we remembered everything,
> we should on most occasions be as ill off as if we remembered
> nothing. It would take as long for us to recall a space of time as
> it took the original time to elapse, and we should never get
> ahead with our thinking. All recollected times undergo . . .
> foreshortening; and this foreshortening is due to the omission
> of an enormous number of facts which filled them. "We thus
> reach the paradoxical result," says M. Ribot, "that one condi-
> tion of remembering is that we should forget. Without totally
> forgetting a prodigious number of states of consciousness, and
> momentarily forgetting a large number, we could not remem-
> ber at all. . . ."

In a century when the stock of human knowledge and of collective
memories would be multiplied, recorded, and diffused as never before,
forgetting would become more than ever a prerequisite for sanity.

But what happened to "forgotten" memories? "Where are the
snows of yester-year?" In the 20th century the realm of memory was
once again transformed, to be rediscovered as a vast region of the un-
conscious. In his *Psychopathology of Everyday Life* (1904) Sigmund
Freud (1856–1939) started from simple examples, such as the forgetting
of proper names, of foreign words, and of the order of words. The new arts
of Memory for which Freud became famous had both the scientific preten-
sions of Simonides and his followers and the occult charm of the Neoplato-
nists. Of course, people had always wondered at the mystery of dreams.
Now Freud found the dream world also to be a copious secret treasury of
Memories. Freud's *Interpretation of Dreams* (1900) showed how psychoa-
nalysis could serve as an art and a science of Memories.

Others, stirred by Freud, would find still more new meanings in
Memory. Latent Memory, or the unconscious, became a new resource of
therapy, anthropology, and sociology. Might not the tale of Oedipus
record everyone's experience? Freud's own mythic metaphors hinted at
our inner inheritance of ancient, communal experience. Carl Jung
(1875–1961), more in the Hermetic tradition, popularized the "collec-
tive unconscious." Now Freud, his disciples and dissidents, had again
rediscovered, or perhaps after their fashion reconstructed, the Cathe-
drals of Memory.

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